Amendments to the Specification

Please replace the paragraph at page 3, line 7, with the following rewritten paragraph.

Thus, what is required [[as]]is an architecture and related methods for streaming media content over heterogeneous networks, unencumbered by the limitations commonly associated with the transport layer protocol of conventional streaming architectures. Just such a solution is presented in the disclosure to follow.

Please add the following paragraph at page 4, line 21.

Fig. 5 is a block diagram of an example heterogeneous protocol layer that includes transport elements and data structures;

Please replace the paragraph at page 4, line 21, with the following rewritten paragraph.

Fig. [[5]]6 is a flow chart of an example method for reliably delivering content across heterogeneous networks, according to one embodiment of the present invention;

Please replace the paragraph at page 4, line 24, with the following rewritten paragraph.

Fig. [[6]]7 is a flow chart of an example method for improving transmission quality in a heterogeneous network, according to one aspect of the present invention;

Please replace the paragraph at page 5 line 1, with the following rewritten paragraph.

Fig. [[7]]8 is a flow chart of an example method of dynamic, channel-adaptive error control in the heterogeneous network, according to one embodiment of the present invention;

Please replace the paragraph at page 5 line 4, with the following rewritten paragraph.

Fig. [[8]]9 is a communication diagram of an example dynamic, channel-adaptive error control scheme for scalable media over a wireless network, according to one aspect of the present invention;

Please replace the paragraph at page 5 line 7, with the following rewritten paragraph.

Fig. [[9]]10 is a block diagram of an example computing system suitable for use in implementing one or more of a content source, a wireless host, and/or a network gateway, according to one example embodiment; and

Please replace the paragraph at page 5 line 7, with the following rewritten paragraph.

Fig. [[10]]11 is a graphical illustration of an example storage medium including instructions which, when executed, implement the teachings of the present invention, according to one embodiment of the present invention.

Please replace the paragraph at page 20 line 25, with the following rewritten paragraph.

Fig. 5 is a block diagram of a heterogeneous protocol layer that includes transport elements and data structures. As introduced above, the innovative heterogeneous network transport layer protocol is designed to enable network elements (e.g., the gateway) to efficiently and accurately distinguish transmission problems occurring in any of a plurality of network components, e.g., a wireless network component, a wireline network component, and the like. In this regard, as introduced above, the heterogeneous network transport layer protocol includes a plurality of control parameters which, when enabled, provide an indication to one or more network elements of the existence of an error condition in one or more of the network components. In addition, one or more of the network elements (e.g., the sender, receiver, gateway, etc.) are responsive to receipt of such control parameters to attempt to resolve problems denoted by the received control parameters.

Please replace the paragraph at page 22 line 13, with the following rewritten paragraph.

Having introduced the functional and architectural elements of the heterogeneous data network 100, an example operation and implementation is developed with reference to Figs. [[5]]6 through 9. For ease of illustration, and not limitation, the teachings of the present invention will be illustrated within the exemplary implementation of a media streaming application introduced above. In accordance with this example implementation, a content source (wireline server)

responds to a content request from a wireless host by streaming content through the heterogeneous network (wireline/wireless components) to the host (e.g., cellphone, PDA, etc.) via the gateway and a wireless communication channel. Unlike conventional heterogeneous content delivery solutions, however, the implementation described herein utilizes an innovative heterogeneous network transport layer protocol which enables one or more network elements (e.g., the gateway) to distinguish wireline transport problems from wireless transport problems. Accordingly, the discussion to follow will continue to reference elements of Figs. 1-4.

Please replace the paragraph at page 22 line 13, with the following rewritten paragraph.

Fig. [[5]]6 is a flow chart of an example method for delivering content across heterogeneous networks, according to one embodiment of the present invention. As shown, the method of Fig. [[5]]6 begins with block 602, wherein wireline server 102 receives a request for content from a wireless host 118. More particularly, wireless host 118 issues a request for content via wireless communication channel 114, gateway 110, wireless network 108, wireline network 106 to host 102. As introduced above, upon receiving such a request, control logic 202 of host 102 invokes an instance of media component 208 to facilitate content delivery.

Please replace the paragraph at page 25 line 6, with the following rewritten paragraph.

Fig. [[6]]7 is a flow chart of an example method for improving transmission quality in a heterogeneous network, according to one aspect of the present invention. In accordance with the illustrated example of Fig. [[6]]7, a more detailed description of identifying the source of transmission problems (block 616 of Fig. [[5]]6) is presented. As shown, the method begins with block [[712]]702 wherein a determination is made as to which network component of the heterogeneous network the source of the transmission problem lies. As introduced above, the heterogeneous network transport layer protocol includes a plurality of control parameters, issued by one or more network elements, to identify network-centric transmission problems. Thus, a preliminary determination is made in block [[704]]702 of whether the transmission problem lies in the wireless or wireline link. As introduced above, this determination is made based, at least in part, on the type of control parameter received.

Please replace the paragraph at page 27 line 7, with the following rewritten paragraph.

Turning next to Fig. [[7]]8, a flow chart of an example method of dynamic, channel-adaptive error control in the heterogeneous network is presented, according to one embodiment of the present invention. As introduced above, many media streaming applications benefit from a sophisticated error control scheme which makes them relatively error resilient. Such error control schemes do not, however, anticipate transmission over a heterogeneous network much less a network consisting of a wireless network component. Those skilled in the art will

appreciate that often, error correction in a wireless communication channel requires an increase in transmission power (effectively raising the noise floor in the wireless network). Moreover, not all applications benefit from such an integrated error control system. Thus, despite the fact that a certain element of error control identified above is relegated to the application layer, it remains important to implement some level of error control in the transport layer.

Please replace the paragraph at page 27 line 20, with the following rewritten paragraph.

In accordance with but an example illustrated embodiment, the method of Fig. [[7]]8 begins with block 802 wherein the gateway 400 generates an estimate of communication channel status based, at least in part, on one or more channel quality metrics and statistical modeling techniques, block 802. According to one implementation, channel modeling is performed by error control modules 413/216.

Please replace the paragraph at page 30 line 12, with the following rewritten paragraph.

Continuing with the process of Fig. [[7]]8, having generated a statistical model of the communication channel, error control module 413/216 employs one or more error control schemes to reduce the distortion experienced in the receiver, block 804. More specifically, according to one example embodiment, error control module 413/216 selectively invokes and dynamically modifies a hybrid ARQ and FEC error control scheme, while being sensitive to delay constraints based, at least in part, on the modeled channel status.

Please replace the paragraph at page 35 line 2, with the following rewritten paragraph.

Continuing with block 806 of Fig. [[7]]8, once the appropriate ARQ and/or FEC error correction scheme is selectively invoked (block 804), the sender (200) monitors bit allocation among and between data layers to reduce end-to-end distortion, while maintaining a minimal amount of overhead (i.e., directly related to power consumption). One of the challenging tasks for streaming multimedia content, for example, over a wireless channel is how to allocate the bit budget to the source and the channel. Because the media content serviced is scalable, it can be divided into two parts, e.g., important media data (IMD) and less important media data (LMD). According to one implementation, the error processing scheme of processing system 100 applies different error control schemes to IMD and LMD according to their respective priorities, and characteristics of the media (e.g., audio vs. video vs. text, etc.).

Please replace the paragraph at page 36 line 12, with the following rewritten paragraph.

To further illustrate the process introduced in Fig. 8, above, attention is now drawn to Fig. [[8]]9 wherein a graphical illustration of an example dynamic, channel-adaptive error control scheme for scalable media over a wireless network is presented, according to one aspect of the present invention. As above, thick black lines in the figure denote data content, while narrower grey lines denote control content.

Please replace the paragraph at page 36 line 18, with the following rewritten paragraph.

In accordance with the illustrated example implementation of Fig. [[8]]9, the communication model 900 is presented comprising a scalable content encoder (e.g., media encoder) 904, channel-adaptive, unequal error control module 906, the wireless communication channel 910 (e.g., 114), a channel decoder 912, and a scalable source content decoder 918. In accordance with the error control scheme introduced above, the scalable source content encoder 904, which may reside in the source (200) and/or gateway (400), receives content 902 and encodes it in accordance with the compression mechanism associated with the wireless communication channel 910. Once encoded, the encoded content is passed through the channel-adaptive, priority sensitive error control module 906 (again, at source (200) and/or gateway (400)) before communication to a requesting wireless host (300) via the wireless communication channel 910.

Please replace the paragraph at page 38 line 2, with the following rewritten paragraph.

Fig. [[9]]10 illustrates an example of a suitable computing environment 1000 on which one or more elements of the innovative heterogeneous network for streaming media content may be practiced. It should be appreciated that computing environment 1000 is only one example of a suitable computing environment and is not intended to suggest any limitation as to the scope of use or functionality of the streaming architecture. Neither should the computing environment 1000 be interpreted as having any dependency or requirement relating

to any one or combination of components illustrated in the exemplary computing environment 1000.

Please replace the paragraph at page 39 line 3, with the following rewritten paragraph.

As shown in Fig. [[9]]10, the computing environment 1000 includes a general-purpose computing device in the form of a computer 1002. The components of computer 1002 may include, but are not limited to, one or more processors or execution units 1004, a system memory 1006, and a bus 1008 that couples various system components including the system memory 1006 to the processor 1004.

Please replace the paragraph at page 40 line 19, with the following rewritten paragraph.

Turning to **Fig. [[10]]11**, an implementation of one or more elements of the architecture and related methods for streaming content across heterogeneous network elements may be stored on, or transmitted across, some form of computer readable media in the form of computer executable instructions. According to one implementation, for example, instructions 1102 which when executed implement one or more elements of the heterogeneous network transport layer protocol, the media component of the content source 200, wireless host 300, and/or the network gateway 400, and/or instructions 1104 to implement the dynamic, channel adaptive error control scheme of the content delivery system 100 may well be embodied in computer-executable instructions. As used herein, computer readable media can be any available media that can be accessed by a computer. By way of example,

and not limitation, computer readable media may comprise "computer storage media" and "communications media."

Please replace the paragraph at page 41 line 25, with the following rewritten paragraph.

Fig. [[10]]11 is a block diagram of a storage medium 1100 having stored thereon a plurality of instructions including instructions to implement a heterogeneous network transport layer protocol 1102 and/or a dynamic, channel-adaptive error control scheme for scalable media according to yet another embodiment of the present invention.